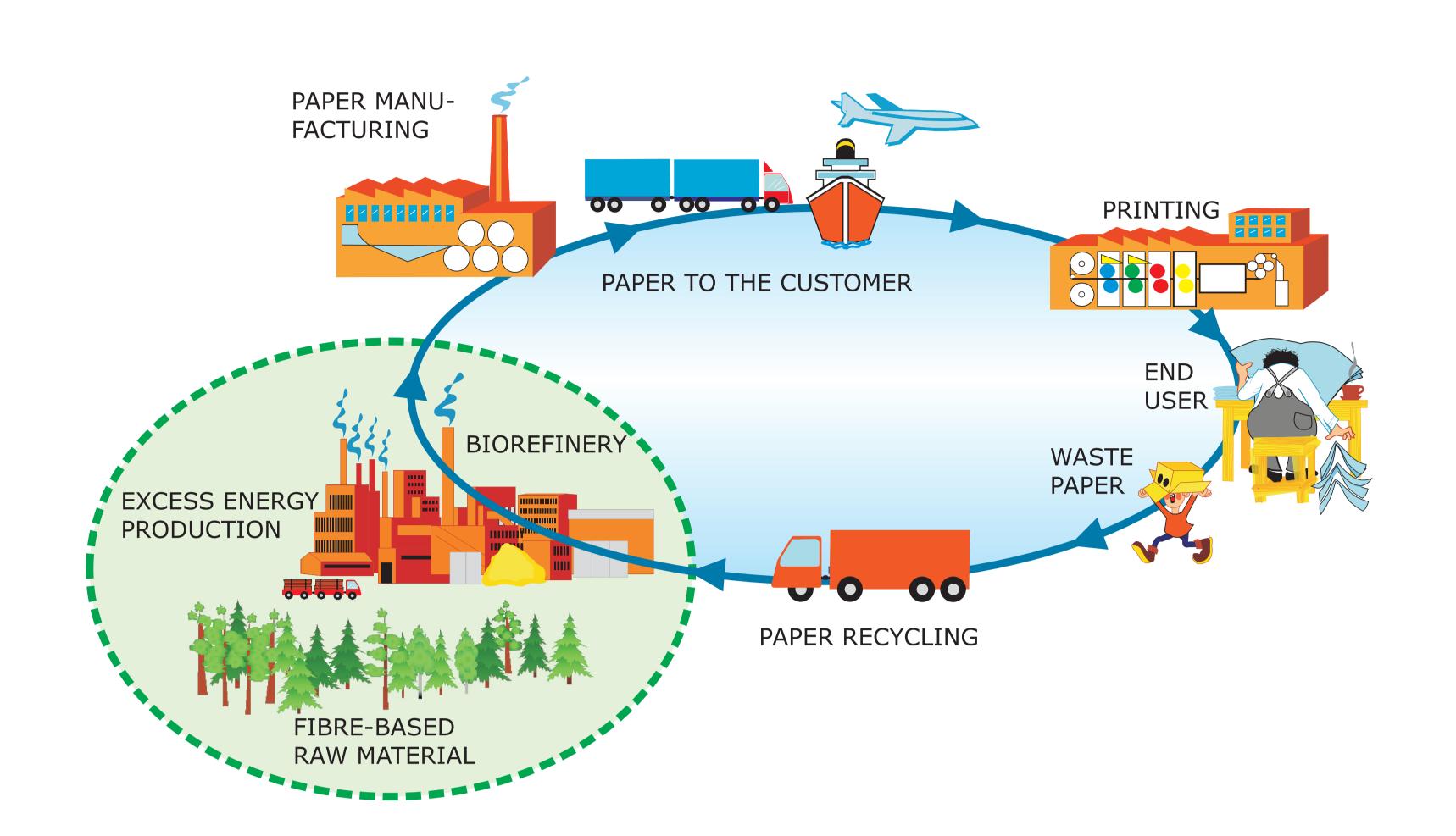
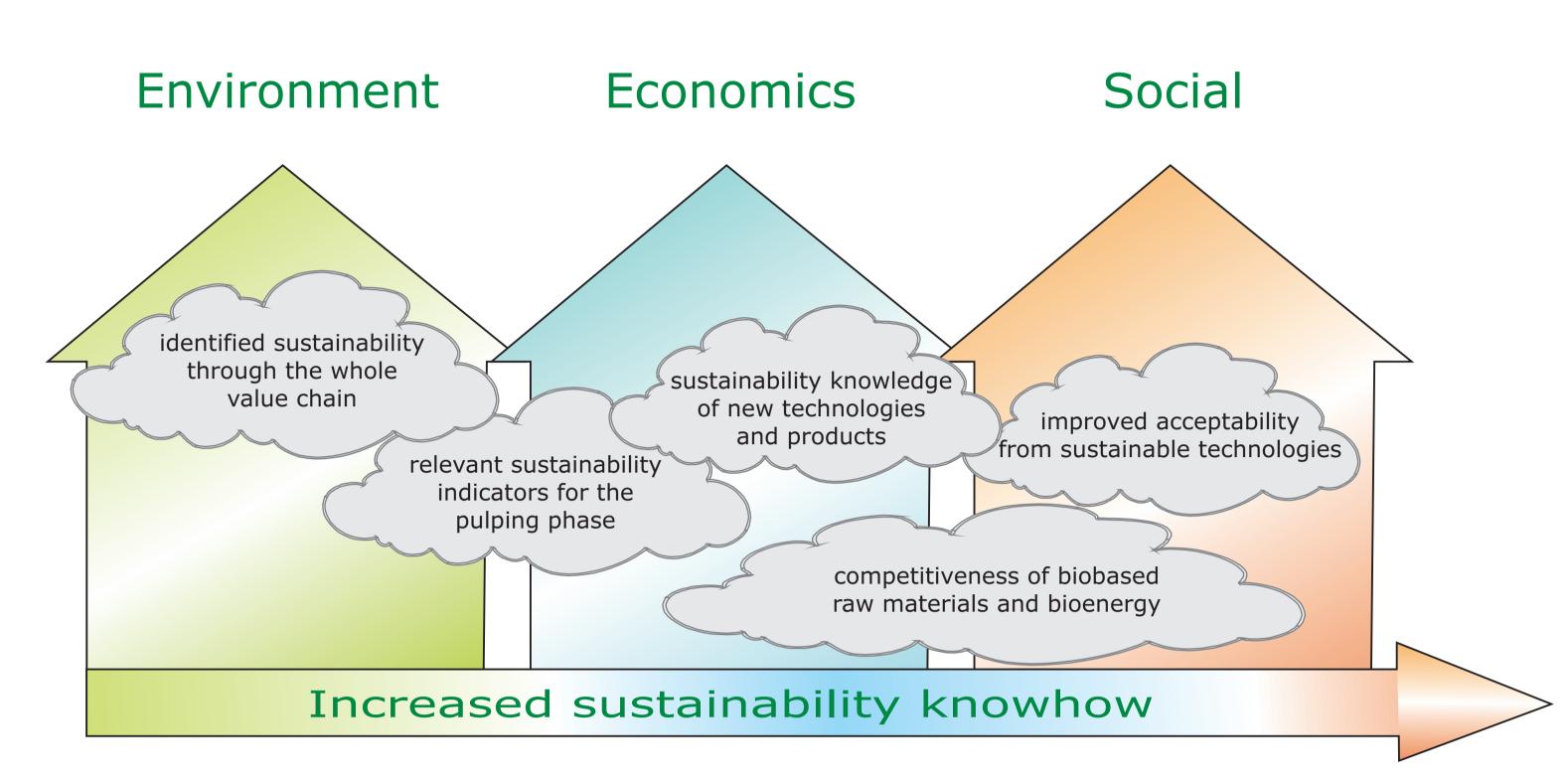
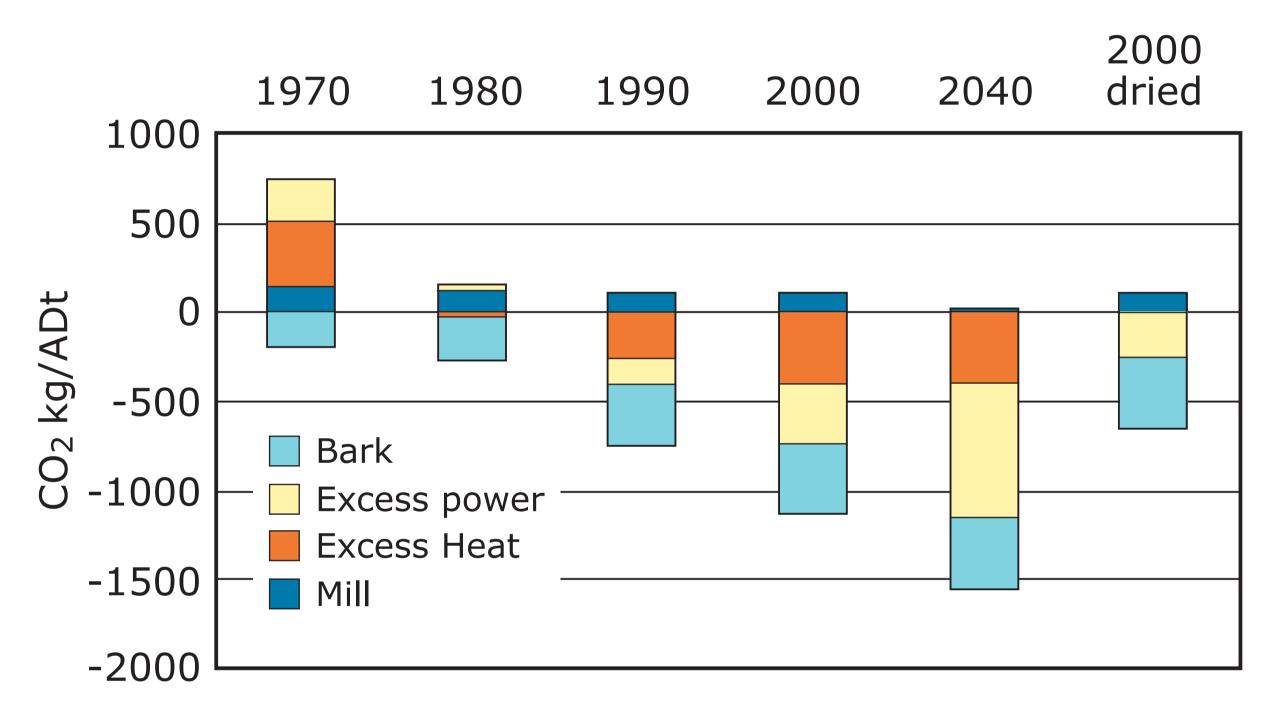
## Sustainability Tool for wood fibre chain



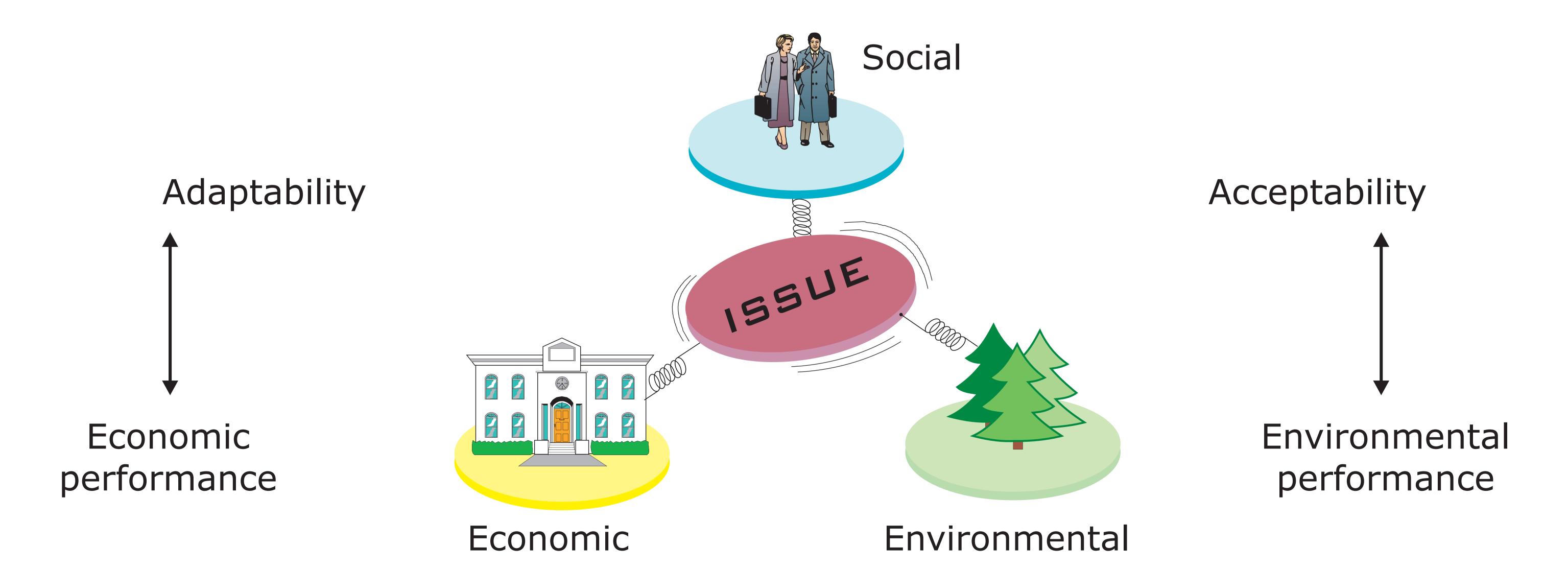


## Saw mill Solid Wood Products Logwood Chips Bioenergy Pulpwood Forest Biofuels Pulp mill as BIOREFINERY Chemicals Logging residues Kraft pulp Environmental parameters Biorefinery <u>Inputs</u> <u>Inputs</u> Chemicals Energy - Bio-based chemicals and fuels - Wood - Water - Bioenergy Fiber products - Fuels for transport Fiber products Fiber raw material and harvesting - Emissions to air and water - Solid waste ----- Transportation

## What if the coal power is used instead of bio-based energy sources? Example of fossil CO<sub>2</sub> emissions



Trend in excess energy production as CO<sub>2</sub> kg/Adt kraft pulp in the Finnish kraft pulp mills. Zero line in Y-axis presents self-sufficiency in mill energy balance. Since 1990's the amount of bioenergy production has increased steadily.



A combination of adaptability, acceptability, economic and environmental indicators – both qualitative and quantitative data

Outcome: a sustainability performance profile in different scenarios

